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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,171	11/13/2000	Hirokazu Iguchi	001478	2138

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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 07/30/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,171

Applicant(s)

IGUCHI ET AL.

Examiner

Rip A. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2002.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action follows a response filed on May 24, 2002 in which claim 1 was amended and new claims 3-8 were added.

Claim Rejections - 35 USC § 112

1. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites the terms "other acrylic esters." Without further qualification, it is unclear what the claim intends to describe, especially in light of the preceding recitation of "alkyl acrylates other than those having a C₂-C₈ alkyl group."

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,996,173 to Heichele *et al.* in view of U.S. Patent No. 5,693,699 to Bertelo *et al.* The claims are rejected for the same reasons set forth in the previous office action of November 6, 2001 (see Paper No. 3).

5. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,996,173 to Heichle *et al.* in view of U.S. Patent No. 4,670,509 to Aoyama *et al.*

The discussion of the disclosures of the prior art of Heichle *et al.* from the previous office action is incorporated here by reference (see Paper No. 4). Briefly, the prior art relates to polyvinyl chloride molding compositions comprised of 80-98 % (by weight) of polyvinyl chloride, 2-20 % of an impact modifying resin, and 2-30 % of calcium carbonate (claim 1). The reference does not disclose the use of graft copolymers as impact modifying resins.

Aoyama *et al.* discloses a graft copolymer comprising 15-50 parts (by weight) of a graft monomer component made of 30-100 % (by weight) of methyl methacrylate and 0-70 % of a monomer selected from the group consisting of C₁-C₈ alkyl acrylate, C₂-C₆ alkyl methacrylate, unsaturated nitrile, and aromatic vinyl compounds. The main chain constitutes 50-85 parts of the graft copolymer, and it is comprised of 80-100 % of a C₂-C₈ alkyl acrylate, 0.01-5 % of a crosslinking agent, and 0-20 % of a copolymerizable monomer (claim 1). Said copolymerizable monomer includes alkyl acrylates where the alkyl group is other than alkyl groups having 2-8 carbons, acrylic acid, (meth)acrylamide, vinyl aromatics, *inter alia* (col. 3, line 66 – col. 4, line 8). The specific viscosity of 0.1 g/100 mL of an acetone solution of said material is at least 0.6 (claim 1). In view of these disclosures, a reasonable basis exists to believe that it inherently

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possesses the same physical properties disclosed in the claims of the present invention, namely, a η_{sp}/c value of 1-5 at 30 °C for a 0.2 g/100 mL acetone solution. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Aoyama *et al.* show that the graft copolymer is used to improve both impact resistance and weather resistance of polyvinyl chloride resin without experiencing die swelling problems in the manufacture of the overall composition. Therefore, the modifying resin of the invention is superior to those typically used (*i.e.*, MBS resins) in PVC compositions. Thus, it would have been obvious to one having ordinary skill in the art, having both references at hand, to use the graft copolymer of Aoyama *et al.* in the composition of Heichele *et al.* to arrive at the claims of the present invention, and one would have expected such an embodiment to display similar properties.

Response to Arguments

6. The Applicants traverse the rejection of claims 1 and 2 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,996,173 to Heichele *et al.* in view of U.S. Patent No. 5,693,699 to Bertelo *et al.*

This rejection has not been overcome by amendment because the crosslinked elastomeric polymer may contain 0 % by weight of other copolymerizable monomers. As such, said crosslinked elastomeric polymer would be comprised of 79.9-99.9 % of a C₂-C₈ alkyl acrylate

and 0.01-5 % of a polyfunctional monomer. Note that the graft copolymer of Meunier comprises a C₂-C₁₂ alkyl acrylate and 0.02-10 % of a crosslinking agent containing two vinyl moieties (claims 1 and 2). Therefore the graft copolymer of the present claims still lies within the purview of the prior art because the term “comprises” does not exclude any uncited components.

Regarding the Applicants closing comments regarding the rejection at hand, there is no need for the references to teach the advantages produced by the specific graft copolymer of the secondary references. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

This point notwithstanding, the position that sufficient motivation exists to combine references is maintained. Bertelo *et al.* states specifically that graft polymers are particularly preferred, one such graft copolymer being that described in FR 2,551,447 to Meunier.

In view of the discussion above, the rejection of record has not been withdrawn.

7. The Applicants traverse the rejection of claims 1 and 2 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,996,173 to Heichele *et al.* in view of U.S. Patent No. 4,670,509 to Aoyama *et al.* The Applicant's arguments have been considered fully, but they are not persuasive.

The Applicants assertion that the “thus-modified vinyl chloride molding composition is still different from the presently claimed vinyl chloride resin composition” is based on an

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apparent difference in reduced viscosities of the MEK extract of the graft copolymers. Aoyama *et al.* state that the specific viscosity η_{sp} of the MEK extract is at least 0.6 as measured at a concentration of 0.1 g/100 mL in acetone at 30 °C. The Applicants note that this equates to a reduced viscosity η_{sp}/c of at least 6. While this is true, this says nothing about the viscosity of an MEK extract having a concentration of 0.2 g/100 mL, as cited in the present claims. Since viscosity increases with increasing concentration non-linearly, there is reason enough to believe that the reduced viscosity of the prior art material lies within the claimed range. The Applicants have failed to establish an unobviousness difference in this case.

The discourse of the teachings of Aoyama *et al.* has also been considered, however, there is no cogent reasoning as to why it would not be obvious to use the material disclosed in Aoyama *et al.* in the composition of Heichele *et al.* The problems associated with agglomeration do not relate to the issue at hand, nor does the fact that Aoyama *et al.* neither teaches nor suggests deterioration of Gardner impact strength with large amounts of calcium carbonate.

In view of the discussion above, the rejection of record has not been withdrawn.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

ral

July 19, 2002



DAVID W. WU
SUPERVISORY PATENT EXAMINER
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